Introduction: The management of refractory electrical storm (ES) requiring mechanical circulation support remains clinical challenging in structural heart disease (SHD).

Methods: A total of 81 patients (mean age: 55.3±18.9, 73 men [90.1%]) undergoing ablation were investigated, including 26 patients with ES requiring circulation support (Group 1) and 55 patients without (Group 2). The 30-day and 1-year outcome, including mortality and recurrent ventricular tachyarrhythmias receiving appropriate implantable cardioverter defibrillators (ICD) therapies, were assessed.

Result: The patients in Group 1 were characterized by older age, more ischemic cardiomyopathies, worse left ventricular ejection fraction and more comorbidities. Thirty days after ablation, overall events were seen in 15 patients, including pumping failure-related mortality in 6 of 10 patients (60%). During a 30-day follow-up, Kaplan-Meier curve demonstrated higher mortality in group 1 than those in group 2 (P<0.001). After 1-year follow-up, in spite of the higher mortality in group 1 (P<0.001), the overall events and VA recurrences were similar between these two groups (P=0.154 and P=0.466, respectively). There was a significant reduction of VA burden in both groups and 2 patients had recurrent ES.

Conclusion: Higher 30-day mortality was observed in patients undergoing rescue ablation for refractory ES requiring circulation support, and pumping failure was the major cause of peri-procedural death. Rescue ablation successfully prevented VA recurrences and resulted in comparable one-year prognosis between ES with and without circulation support.